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Paul A. Hosier

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EXAMINER

CUTLER, ALBERT H

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

1. This office action is responsive to communication filed on April 3, 2008.

Response to Arguments

2. Applicant's arguments filed April 3, 2008 have been fully considered but they are not persuasive.
3. With respect to claims 8 and 15, Applicant argues that neither Moraillon or Stark, or the combination thereof teaches the limitation that wherein, in the first mode or the second mode, signals from adjacent photosensors or groups of photosensors on the first and second output lines overlap over time.
4. The Examiner respectfully disagrees. First, with respect to claim 8, Moraillon teaches the second mode of outputting signals from photosensors. In this mode (column 2, lines 54-69) signals from odd columns containing green photosensors are output to a first register (12, figure 3), and signals from even columns containing red and blue photosensors are output to a second register (13). Moraillon teaches that the signals from these photosensors are output parallel-wise to the respective registers (column 2, lines 57-60). As the charges on a line are output parallel-wise to the first and second output lines (12S and 13S), they clearly overlap in time. What Stark provides to the Moraillon reference is a first mode of transferring signals from a first subset of groups of photosensor to a first output line, and transferring signals from a second subset of groups of photosensors to a second output line. The Examiner has previously defined a group of photosensors taught by Moraillon to comprise four photosensors. Stark teaches that a subset (i.e. two photosensors) of the group of photosensors (i.e.

four photosensors) can be combined to achieve a faster readout (See figures 2, 4a and 4b, paragraph 0056). Stark teaches that the readout of two adjacent photosensors is a simultaneous operation (i.e. the readout of the two photosensors overlaps in time, paragraph 0055, lines 10-11).

5. With respect to claim 15, Stark teaches the first mode (see above) of reading out photosensors by combining photosensors in a group. Stark teaches that the readout of two adjacent photosensors is a simultaneous operation (i.e. the readout of the two photosensors overlaps in time, paragraph 0055, lines 10-11). What Moraillon provides to Stark is a second mode of outputting odd and even photosensor signals to first and second output lines, respectively (see above). Moraillon teaches that this method is beneficial because it eliminates defects in output image signals (column 1, lines 30-36). Moraillon further teaches that the signals from these photosensors are output parallel-wise to the respective registers (column 2, lines 57-60). As the charges on a line are output parallel-wise to the first and second output lines (12S and 13S), they clearly overlap in time. Furthermore, two references can easily be combined as Moraillon teaches odd and even image sensor columns containing at least two image sensors of the same color adjacent in the vertical direction (see figure 3), and Stark teaches that two adjacent image sensors in the vertical direction are combined (see figure 4A).
6. Applicant argues that Moraillon does not teach the idea of being able to change the effective resolution of the apparatus. The Examiner agrees that Moraillon does not teach changing the resolution of the image sensor readout by combining adjacent

photosensor outputs. However, this limitation is taught by Stark (See paragraph 0057, lines 1-4. The resolution is halved by combining adjacent photosensor charges.).

7. Applicant argues that Stark is not the same as the odd-even arrangement claimed, referring to paragraphs 0095-0096. Applicant further argues that the odd and even field readouts are not simultaneous in Stark, and that odd and even photosensors are not output one pixel at a time.

8. Once again, the Examiner upholds that Stark simply teaches the benefits of simultaneously combining adjacent image sensors to achieve a faster, low-resolution output (see above rationale, paragraphs 0056-0057). Moraillon teaches the odd-even arrangement claimed wherein signals from odd columns containing green photosensors are output to a first register (12, figure 3), and signals from even columns containing red and blue photosensors are output to a second register (13) simultaneously with the output of the odd columns (see above rationale, column 2, lines 54-69). Moraillon teaches that one pixel is output at a time, as opposed to having multiple pixels output at the same time as taught by Stark. See column 2, lines 54-69 and figure 3 of Moraillon. Odd and even rows of photosensors are output parallel-wise to registers 12 and 13, respectively. The pixels are then output from registers 12 and 13 series-wise. Therefore each pixel is output, and pixels in a given register are output one at a time.

9. Therefore, the rejection is maintained by the Examiner.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan V Ho can be reached on (571)-272-7365. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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AC

/Tuan V Ho/
Primary Examiner, Art Unit 2622